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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/758,619

01/13/2004

Chunsheng Huang

NAN064 US

5787

34036

7590

08/16/2005

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EXAMINER

AKANBI, ISIAKA O

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 08/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/758,619

Applicant(s)

HUANG ET AL.

Examiner

Isiaka O. Akanbi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement file 13 January 2004 has been entered and reference considered by the examiner.

Drawings

The examiner approves the drawings filed 13 January 2004.

Claim Objections

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim 23 been renumbered 24.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosencwaig et al. (6,267,880) in view of Spillman Jr. et al. (4,904,085).

Regarding claims 1, 11 and 15, Rosencwaig discloses a metrology/method/apparatus comprising: a polarization state generator that including an electromagnetic source (90), the polarization state generator produces an electromagnetic beam (106) of known polarization state that is incident on a sample (4); a spatial variable phase retarder (98) in the path of the electromagnetic beam after the sample; and a first set of detector (54) elements within the path of the first beam after the polarizing beam splitter and a second set of detector (56) elements within the path of the second beam after the polarizing beam splitter, wherein the first set of detector

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elements and the second set of detector elements measure the intensity of the first beam and second beam, respectively, as a function of position (see col. 5, line 46-60)

However, Rosencwaig does not disclose a polarizing beam splitter in the path of the electromagnetic beam after the spatial variable phase retarder. Spillman discloses a beam splitter (100) in the path of the electromagnetic beam after the variable retarder (52/60), the polarizing beam splitter into a first beam having a first polarization state and a second beam having a second polarization state that is orthogonal to the first polarization state (see fig. 1).

It would have been obvious to one having ordinary skill in the art at the time of invention to incorporate the teachings of Rosencwaig in conjunction with Spillman to placed spatial variable phase retarder in front of polarizing beam splitter for the purpose of resolving the beam into two orthogonal polarization components and produce a phase shift between them.

As to claim 2, Rosencwaig discloses wherein a beam expander (96) within the path of the electromagnetic beam before the spatial variable phase retarder (98).

As to claims 3 and 18, Rosencwaig discloses wherein polarizing beam splitter is a displacer (52/64)(col. 6, line 26-30).

As to claim 4, Rosencwaig further discloses wherein an aperture before the polarizing beam splitter (64) and detector (66).

As to claims 5 and 21, Rosencwaig discloses wherein the first set of detector elements (54) and second set of detector elements (56) are detector elements in a detector array (col. 5, line 35-40).

As to claim 6, Rosencwaig discloses wherein the first set of detector elements and second set of detector elements are separate detectors (see BPR 12, fig. 1).

Regarding claims 7 and 8, Rosencwaig discloses wherein a means (66) for summing the intensities of the first beam and the second beam and a means (48) for normalizing the first and second polarizing beam using said summed intensities (see col. 5, line 56-60).

As to claims 9 14 and 23, Rosencwaig further discloses wherein said means for summing the intensities and means for normalizing is a computer system (see fig. 1) coupled to the first set of detector elements and second set of detector elements, the computer system receiving signals indicative of the intensity of the first beam and the second beam, the computer system (48) having a computer-usable medium having

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computer-readable program code embodied therein for summing the intensities of the first beam and the second beam and normalizing the first and second polarizing beam using said summed intensities (col. 5, line 55-64).

Regarding claims 10 and 24, Rosencwaig discloses wherein at least one relay lens (50/60) disposed between the polarizing beam splitter and the first set of detector elements and the second set of detector elements.

Regarding claims 12, Rosencwaig discloses wherein expanding the electromagnetic beam (106) prior to producing a spatially dependent relative phase difference (50/98)(col. 8, line 15-20).

Regarding claims 13, Rosencwaig discloses wherein summing the intensities of the two beams having orthogonal polarization states (col. 6, line 25-35).

As to claims 16 and 17, Rosencwaig discloses a means (96) for expanding the electromagnetic beam, the means for expanding being in the path of the electromagnetic beam before the means for producing a spatially dependent phase shift (76/98)(see fig. 4).

As to claim 19, Rosencwaig discloses wherein the means for splitting the phase shifted beam into a first beam and a second beam comprises a polarizing beam splitter (52)(fig. 4).

As to claim 22, Rosencwaig discloses wherein the first set of detectors and the second set of detectors are separate linear detectors (col. 5, line 36-37).

Conclusion

Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isiaka Akanbi whose telephone number is (571) 272-8658. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m.

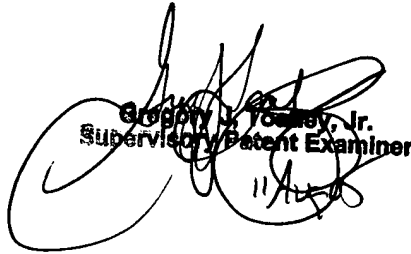
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Isiaka Akanbi

August 3, 2005


Gregory J. Yocum, Jr.
Supervisory Patent Examiner